

ADMINISTRATIVE RECORD

SF FILE NUMBER

1060400

0061068

Love StockEngineers
Planners
Economists
Scientists

1264048 - R8 SDMS

ENVIRONMENTAL PROTECTION
AGENCY

APR 22 1985

MONTANA OFFICE

April 17, 1985

W68230.L1.48

Ms. Paula Ausserer
Sample Management Office
303 N. Lee Street
Alexandria, VA 22313

Dear Ms. Ausserer:

Subject: Laboratory for Analysis of Livestock Samples
Phase 1 RI
ASARCO, MT (RI/FS)
71.8L30.0
East Helena, Montana

This letter summarizes our review of CLP SAS laboratory capabilities with respect to the analysis of livestock samples for the subject site, and requests you procure laboratory services outside the CLP.

After CH2M HILL notified you of the need for livestock sample laboratory services, we understand you conducted a phone survey of CLP Inorganic SAS laboratories to determine which laboratories have blood and hair analysis experience. You identified three laboratories (Versar, Rocky Mountain Analytical, and Wilson Laboratories) who could potentially meet the project needs.

A draft Laboratory Analytical Protocol (LAP) for Livestock Sample Analysis was distributed to the three CLP Inorganic SAS laboratories. The draft LAP contained a section on minimum qualifications and experience. CH2M HILL understands that, after reviewing the draft LAP, both Versar and Rocky Mountain Analytical verbally notified you that they could not meet the minimum qualifications and experience. This left Wilson Laboratories. Wilson Laboratories submitted a brief Statement of Qualifications (SOQ) in accordance with the draft LAP instructions (see Attachment 1). CH2M HILL received the SOQ on April 15, 1985.

10

Ms. Paula Ausserer
Page 2
April 17, 1985
W68230.L1.48

Upon receipt of the Wilson SOQ, CH2M HILL compared the SOQ against the minimum qualifications and experience requirements contained in the draft LAP. During CH2M HILL's review of the SOQ, several questions arose and we contacted Wilson Laboratories directly to answer our questions. A copy of the telecom is contained in Attachment 2.

Subsequent to our discussion with Wilson Laboratories, CH2M HILL contacted AIHA to learn more about existing Wilson Laboratories certification. A copy of the telecom is contained in Attachment 2.

Based on the aforementioned activities, CH2M HILL offers the following observations regarding Wilson Laboratories ability to perform livestock sample analysis.

1. Wilson Laboratories is not approved/certified by any organization (OSHA, CDC, NIOSH) for the analysis of lead (or other trace elements) in blood. Approval/certification is a requirement stated in the draft LAP.
2. Wilson Laboratories had conducted the following inorganic blood analyses since 1978 (or 1979):
 - Textile Services, 2 to 3 samples per quarter, lead in whole blood
 - General Battery, 10 samples, arsenic and lead in whole blood

Based on this knowledge, it does not appear possible for Wilson Laboratories to meet the minimum analyst experience requirements stated in the draft LAP.

3. Wilson Laboratories has not performed blood and hair analyses for enforcement purposes. Since the ASARCO project is an enforcement site, and since the livestock sampling/analysis is a one-shot effort (that can only be repeated one year later), there is no margin for error. Wilson Laboratories' lack of enforcement experience is perceived as a weakness.

Ms. Paula Ausserer
Page 3
April 17, 1985
W68230.L1.48

In light of the aforementioned three items, CH2M HILL believes there are better (than Wilson Laboratories) choices for livestock sample laboratory analysis. These better choices exist outside the CLP. The names of potentially more qualified and experienced laboratories have been previously transmitted to you (correspondence from Lovell to Ausserer, March 27, 1985).

CH2M HILL has discussed the results of our evaluation of Wilson Laboratories SOQ with Mr. Gene Taylor (the EPA Project Officer for the ASARCO site) and Dr. Juanita Hillman (EPA Region VIII Quality Assurance Officer). It is their opinion that laboratory services for livestock sample analyses should be procured outside the CLP. Copies of the telecoms with these individuals are attached (Attachment 2).

CH2M HILL, therefore, requests you obtain the necessary approvals and develop the necessary paperwork to procure a laboratory outside the CLP. We understand you have already substantially progressed on these activities.

We will have a final LAP developed late this week or early next week. We will contact you to determine the necessary LAP distribution. Your timely response to our needs has been highly commendable to date. We request that you put a high priority on procuring a laboratory for livestock sample analysis. We may be collecting livestock samples as early as one week from today.

CH2M HILL assumes that you will notify Wilson Laboratories. Tell them that CH2M HILL sincerely appreciates their interest.

If you have any questions, please call.

Sincerely,



Douglas W. Lovell, P.E.
Site Project Manager

Attachments

DWL/dls

cc: Gene Taylor/EPA, 8MO, Helena (w/attachments)
Juanita Hillman/EPA, VIII, Denver (w/attachments)

Ms. Paula Ausserer

Page 4

April 17, 1985

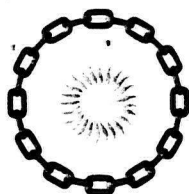
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Jim Schwing/CH2M Hill, Denver (w/o attachments)
Vicki Kohonoski/CH2M HILL, Reston (w/attachments)
John Lucero/CH2M HILL, Denver (w/o attachments)
Sue Sherman/CH2M HILL, Denver (w/o attachments)
Doug Dollhopf/MSU, Bozeman (w/o attachments)
Ed Casne/Stiller & Associates, Helena (w/o attachments)

0061072

ATTACHMENT 1

Statement of Qualifications
from Wilson Laboratories



0061073

WILSON LABORATORIES

528 N. NINTH • P.O. BOX 1858 • SALINA, KANSAS 67402-1858 • (913) 825-7186

12 APRIL 1985

DOUGLAS W LOVELL
CH2M HILL
5995 SOUTH SYRACUSE STREET
ENGLEWOOD CO 80111

Re: Draft Livestock LAP

Dear Mr. Lovell:

Wilson Laboratories is pleased to submit a Statement of Qualifications to CH2M HILL.

Wilson Laboratories is accredited by the American Industrial Hygiene Association to perform industrial hygiene analysis. We are currently rated proficient in all parameters of the NIOSH Proficiency Analytical Testing (PAT) program.

Below I have listed the three required references:

<u>Client</u>	<u>Project</u>	<u>Contact</u>	<u>Phone #</u>
General Battery	Lead & Arsenic in Blood & Air	Joyce Dickerson	(913) 825-6276
Textile Services	Lead in Blood	Matt Healy	(913) 825-5451
Associated Allergists	Organics in Blood	Kent Rowe	(800) 362-1181

The majority of Wilson Laboratories Industrial Hygiene analysis has been confined to air analyses. Blood samples have been performed for individuals when air limits had been exceeded or upon recommendation of their physician.

Key Personnel are as follows:

Bruce T. Fast - Metals Lab Manager

Mr. Fast has ten years experience in the operation of AA flame and furnace analysis.

Kathleen Kroupa - Chemist

Ms. Kroupa has two years experience at Wilson Laboratories in general and metals analysis. Ms. Kroupa is our chief ICP analyst and has attended three training courses on operation of the ICP instrument.

12 APRIL 1985
MR. DOUGLAS W. LOVELL
PAGE 2

0061074

Catherine Gawith - Metals Preparation

Ms. Gawith has two years experience in metals preparation.

Ms. Gawith has been in charge of all preparation for the ICP program.

If you have any further questions please contact the undersigned.

WILSON LABORATORIES

Bernadine K. Siemens

Bernadine K. Siemens
Administration Officer

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enclosure



WILSON LABORATORIE

WILSON LABORATORIES

528 NORTH NINTH

SALINA, KANSAS 67401

(913) 825-7186



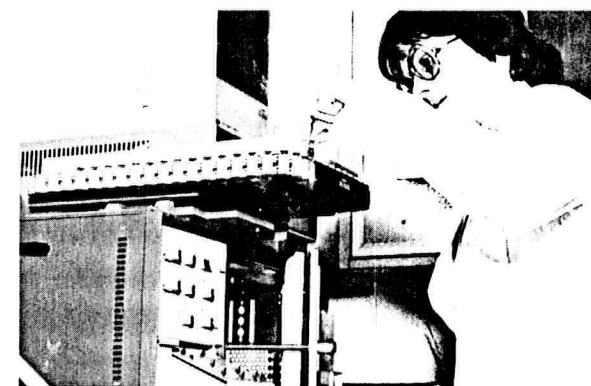
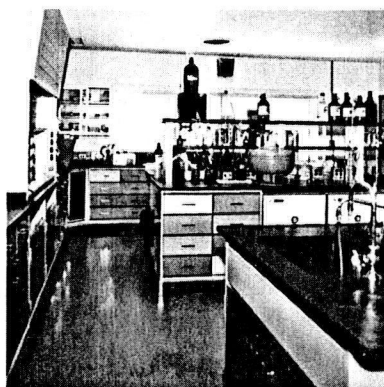
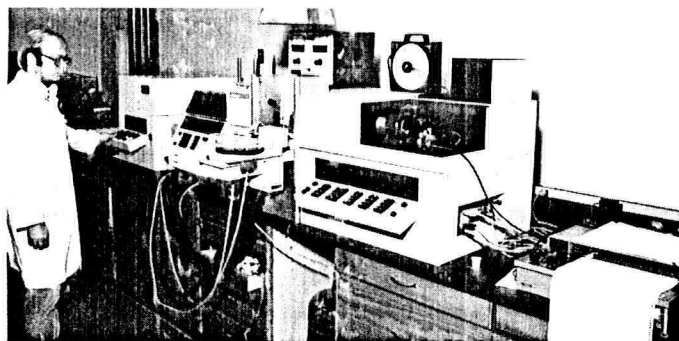
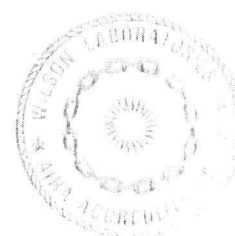
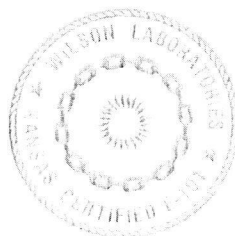
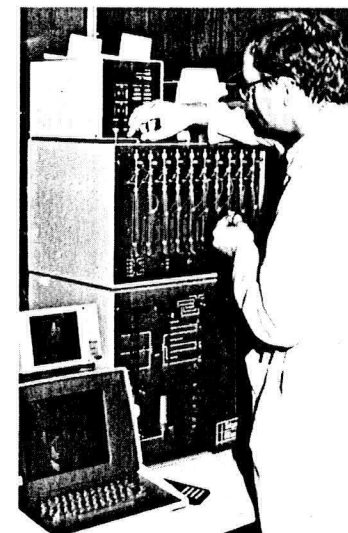
WILSON LABORATORIES

0061075

WILSON LABORATORIES, in operation since 1955, offers a wide range of analytical services and research and development capabilities to industry, governmental agencies, municipalities and private consultants.

The Company's modern facilities house 16,000 sq. ft. of laboratory and pilot areas, offices and a technical library and conference room. Staffing the facilities are graduate scientists and engineers with degrees in chemistry, biology, physics, mathematics and engineering.

Certified standards of excellence are maintained through participation in several state and national certification programs and quality control is rigidly enforced through the use of precision and accuracy quality control charts that ensure data reliability.



0061076

INDUSTRIAL HYGIENE TECHNICAL QUALIFICATIONS

Wilson Laboratories has had extensive experience in the field of industrial hygiene. As a subsidiary of Wilson & Company, Consulting Engineers, we have solved many industrial hygiene problems to the satisfaction of our clients, OSHA and various state agencies.

We conduct surveys to collect and analyze metal fumes, asbestos fibers, nuisance and silica dust, solvent vapors, airborne mercury and hydrocarbon pollutants. This variety of surveys for a broad cross section of manufacturers and processors has been instrumental in controlling plant environments and solving environmental hygiene problems. We use test methods in accordance with NIOSH directives and criteria documents for toxic substances.

We also supply filters, charcoal tubes or other media for sample collection, with analyses performed in our Salina, Kansas laboratory.

Our involvement in these projects has brought us in close contact with regulatory agencies, their personnel, methods and related procedures for complying with the regulations.

LABORATORY CERTIFICATION

Water and Wastewater Certification:

Wilson Laboratories is certified by the Kansas Department of Health and Environment for all primary and secondary drinking water parameters, except radiologic, and for all wastewater analyses. The Laboratory was the first commercial laboratory to be certified in the State of Kansas. Reciprocal certifications have been granted by the Environmental Protection Agency and by the State of New Mexico. The Oklahoma Water Resources Board certified Wilson Laboratories in 1972, and the AAA rating (heavy metals, minerals and nutrients and biologic surveys) has been maintained. Performance samples are analyzed twice each year for this program. For 1983, Wilson Laboratories earned the highest Oklahoma Water Resources Board certification score of all participating laboratories, and is one of six laboratories out of 133 program participants to earn certification for all parameters tested.

Hazardous Waste Certification:

The State of Kansas certifies Wilson Laboratories for Hazardous Waste analyses utilizing designated EPA procedures. The certification includes Gas Chromatography/Mass Spectrometry (GC/MS) analysis of Organic Priority Pollutants. EPA performance samples are analyzed annually for this certification program.

Industrial Hygiene Certification:

Wilson Laboratories is certified as Laboratory No. 141 by the American Industrial Hygiene Association. The Laboratory participates in all analysis and quality assurance programs which are a part of these certification requirements, including the Proficiency Analytical Testing (PAT) program sponsored by NIOSH.

Recertification for three additional years is underway (April 1983) and will be completed after site visitation by AIHA site visitor. Verification of current certificates may be made by contacting the American Industrial Hygiene Association at (216) 762-7294.

Certificates for all of these certification programs are attached.

0061078

INDUSTRIAL HYGIENE SERVICES

The Occupational Safety and Health Act (OSHA), and extensive state and local rulings have been directed toward improvement of industrial hygiene in the work place. Wilson Laboratories provides comprehensive industrial hygiene services which include:

Plant Surveys

- In-plant monitoring for dusts, fibers, fumes and heavy metals affecting workers and the work area
- In-plant noise and vibration measurements
- Personnel monitoring for heavy metals in blood, urine and hair

Noise and Air Pollutant Abatement

- Monitoring surveys
- Feasibility studies and reports
- Facility design
- Compliance testing and reporting

Liaison with Regulatory Agencies at the Federal, State and Local Levels

COMPUTER INFORMATION MANAGEMENT SYSTEM

Upon receipt of samples at the Laboratory, log-in procedures occur immediately. The Laboratory utilizes computerized sample-tracking and scheduling procedures, beginning with log-in procedure upon receipt of samples and ending with a computer-generated final report.

Client and sample information are entered into the computer at log-in. Included in this information are: date received, date and time sampled, sample collector, field data (such as pH and temperature) and analyses to be performed. A computer-generated label is affixed to each sample. Daily schedules are issued by the computer for control of the workload and for adherence to required holding and turn-around times for the various analyses. Sample storage locations are also tracked by the computer.

Raw analytical data are recorded in bound notebooks and hard copies of all completed reports are retained. All data are permanently retained on tape. Field data and notes are recorded in bound notebooks and are retained as a permanent part of the project records.

Wilson Laboratories utilizes a Perkin-Elmer 3210 computer system for computerized information management. Program development and software are based on the Perkin-Elmer LIMS system with modification and developments by in-house personnel. The computerized system has been in operation since January 1981.

ANALYTICAL QUALITY CONTROL

Quality control activities are incorporated for all samples analyzed at Wilson Laboratories. The Laboratories' quality control program is based on the U.S. EPA Manual of Analytical Quality Control in Water and Wastewater Laboratories, published by the Analytical Quality Control Laboratory, National Environmental Research Center, Cincinnati, Ohio (June 1972). In addition, for organics analysis, we use the Manual of Analytical Quality Control for Pesticides in Human and Environmental Media. This manual is published by the Health Effects Research Laboratory, Environmental Toxicology Division, Research Triangle Park, North Carolina 27711.

Quality control is assured for all analyses routinely performed in the Laboratory by the use of Shewhart precision and accuracy charts, an EPA approved system. These procedures involve the analysis of a duplicate sample (precision) and a spiked sample (accuracy) after the analysis of every ten unknown samples. Each analyst notes his data by number so that quality assurance is checked for each individual for every analysis he runs. Spikes reference materials (SPRM's) are utilized for quality control in biological samples.

All reagents are prepared and analyzed in accordance with EPA regulations for quality control. A calibration and maintenance schedule is maintained for all instruments. All major instruments are on manufacturer's service contracts.

CHAIN-OF-CUSTODY

Sample chain-of-custody is maintained when required by the client or the regulatory agency. All samples that are collected by Wilson Laboratories personnel are maintained under chain-of-custody control. This procedure assures that samples are collected, transferred, stored, analyzed and disposed of by authorized personnel only.

HAZARDOUS WASTE SAMPLING AND ANALYSIS

Wilson Laboratories has extensive experience in all aspects of hazardous waste sampling and analysis. Hazardous waste analyses have been performed for more than 500 clients in the past ten years. Sampling and analysis are provided for solid, liquid and air samples. The results obtained through these studies provide information required to treat, store or dispose of wastes properly. The preparation of hazardous waste management plans, groundwater monitoring plans and hazardous waste delisting petitions to EPA are additional services offered by Wilson Laboratories.

Hazardous waste sampling and analyses were performed for the following clients:

- Remington Arms — Independence, Missouri
- Beech Aircraft — Wichita, Kansas
- General Electric Company — Albuquerque, New Mexico
- Cessna Wallace — Wichita, Kansas
- NCR Corporation — Wichita, Kansas
- Whirlpool Corporation — Fort Smith, Arkansas
- Rockwell International — Atchison, Kansas
- The Boeing Company — Wichita, Kansas
- Westinghouse Corporation — Salina, Kansas
- Sundstrand Corporation — Arvada, Colorado
- 3M Company — St. Paul, Minnesota
- Phillips Petroleum — Kansas City, Kansas
- Pfizer, Inc. — Kansas City, Missouri
- Monsanto Research Corporation — Burlington, Iowa
- Getty Refining & Marketing Company — El Dorado, Kansas
- E. I. DuPont de Nemours & Co. — Topeka, Kansas
- FMC Corporation — Lawrence, Kansas
- Lockheed-Georgia Corporation — Marietta, Georgia

HAZARDOUS WASTE RECOVERY OR DETOXIFICATION

The development and testing of chemical processes for recovery or detoxification of hazardous wastes is a specialty of Wilson Laboratories. Our staff of chemical process engineers is complemented by chemists, physicists and technicians in chemical process development projects. Extensive and well-equipped pilot laboratory facilities are available for these projects.

Recently completed projects include pilot studies for:

- Recovery of caustic from aluminum chemical milling process waste for the aircraft industry (R.P. Selm U.S. Patent No. 360472)
- Recovery of nitric acid from metal descaling operations for the aircraft industry
- Sludge stabilization (detoxification) for chromium oxide and paint wastes for the aircraft industry
- Stabilization of lead sulfate sludges for a secondary lead processor
- Oxidative destruction of explosive nitro compounds including RDX, tetracene and lead styphnate in waste-waters from explosives manufacturing operations for the U.S. Army Corps of Engineers
- Oxidative destruction of paint stripper waste by ozone-UV and conventional biological treatment
- Oxidative destruction of Magnaflux emulsifiers used in metal inspection processes by use of iron catalyzed-hydrogen peroxide/UV treatment
- Oxidative destruction of concentrated chlorinated pesticides by use of iron catalyzed-hydrogen peroxide/UV treatment
- Oxidative destruction of spent polyglycol solutions by ozone/UV treatment
- Detoxification or recovery of chromium (VI) wastes by treatment with hydrogen peroxide
- Solvent destruction by incineration
- Solvent recovery by fractionation or distillation

INSTRUMENTATION

WILSON LABORATORIES

0061087

GAS CHROMATOGRAPHY / MASS SPECTROMETRY (GC/MS) ANALYSIS

Wilson Laboratories is certified to perform Priority Pollutant Organic Analyses by the Kansas Department of Health and Environment. Certification samples are supplied by EPA for this program. The Oklahoma Water Resources Board also certifies Wilson Laboratories for priority pollutants analysis. Copies of both certificates are appended.

A recent project involved a complete GC/MS screen for priority pollutants for 120 samples of groundwater from a hazardous waste disposal facility.

Wilson Laboratories also performs non-routine GC/MS analyses which are tailored to the project requirements.

Recent non-routine GC/MS projects include such diverse investigations as analysis of head-space gases from cola concentrate for solvent contamination, analysis of foreign solid contaminants in jet aircraft fuel filters and trace noble gas analysis in fluorescent light bulbs.

The Laboratory has also developed a capillary column GC/MS procedure for the screening of samples for both priority pollutants and non-priority pollutant pesticides at the part-per-billion level. Pesticides analyzed include organochlorine, organophosphorous and triazine classes.

MAJOR INSTRUMENTATION

Gas Chromatography/Mass Spectrometry

- Finnigan OWA-30 Automated GC/MS System
 - Tekmar LSC-2/ALS Purge and Trap Apparatus with Ten Station Autosampler
 - Syringe Autosampler for liquid sample extracts
 - Nine Track Magnetic Tape Drive interfaced to system for archival storage

Gas Chromatography

- Tracor, Model 560
 - Model 700A Hall Detector for halogens, nitrogen and sulfur
 - Model 702 Alkali Flame Ionization Detector for nitrogen and phosphorus
 - Flame Ionization Detector for general organics analysis
 - Autosampler
- Perkin-Elmer Model 900
 - HNU Photoionization Detector for volatile hydrocarbons
 - Flame Ionization Detector
 - Flame Photometric Detector for phosphorus and sulphur
 - Thermal Conductivity Detector
- Hewlett-Packard Model 5710A
 - Electron Capture (Ni63) Detector
 - Western Scientific Modified Coulson Detector for halides and nitrogen
 - Autosampler
- Data Processors for Gas Chromatographs
 - Perkin-Elmer Sigma 10 with Basic
 - Hewlett-Packard Model 3380A
 - Spectro Physics 4100 with Basic
- Tekmar Model LSC-1
 - Purge and Trap Apparatus for analysis of volatile organics

MAJOR INSTRUMENTATION
(continued)

Liquid Chromatography / Ion Chromatography

- Perkin-Elmer Series 3B
 - Model LC 75 Auto Control
 - Autosampler
 - Model LC 100 Oven
 - Model LC 75 Variable Wavelength UV Detector
 - Wescan Model ED 110 Electrochemical Detector
 - Refractive Index Detector
 - Wescan Model 2130 Conductivity Detector

Infrared Spectrophotometry

- Perkin-Elmer Model 283 research grade unit

Atomic Absorption for Metals Analysis

- Perkin-Elmer ICP/6000 Inductively Coupled Plasma System
 - Model 7500 Data Station
 - Model AS-50 ICP Autosampler
 - Model PR-210 Printer
- Perkin-Elmer Model 5000
 - Model 3600 Data Station
 - Model 500 Graphite Furnace
 - Model AS-50 Flame Autosampler
 - Model 056 Strip Chart Recorder
 - Model PR 80 Printer
 - Model AS-40 Autosampler
 - Dual EDL Power Supply
- Perkin-Elmer Model 503
 - Model 2100 Graphite Furnace
 - HGA Temperature Ramping Accessory
 - Deuterium Arc Background Corrector
 - Model MHS 10 Hydride Generator
 - Model AS1 Autosampler
 - EDL Power Supply
 - Model 056 Strip Chart Recorder

UV Visible Spectrophotometry

- Varian Model 635 double beam recording spectrophotometer with cells from 1 cm to 10 cm. Spectra are recorded on a Hewlett-Packard 235 X-Y recorder.

MAJOR INSTRUMENTATION (continued)

Technicon Autoanalyzer II

- The system has both colorimetric and ISE (ion specific electrode) detection systems. Modules are available for all analyses which are EPA approved for automated procedures.

— Sulfate	— pH
— Nitrate/Nitrite	— Conductivity
— Phosphate, ortho	— Fluoride
— Chloride	— Alkalinity
— Phenol	— Cyanide

Thin-Layer Chromatography

- Samples to be analyzed by thin-layer chromatography are prepared by the same procedures used for pesticide analysis. After K-D concentration, the thin-layer chromatograms are developed using the following equipment:
 - Thin-layer plates — Glass plates (200 x 200 mm) coated with 0.25 mm layer of Silica Gel G (gypsum binder)
 - Spotting Template
 - Developing Chamber
 - Sprayer — 20 ml capacity

The methods used are published in NPDES, Appendix A, Federal Register, 38 No. 75, Part II.

Total Organic Carbon Analysis

- Beckman 915 unit with Beckman Model 865 Infrared Analyzer

Specific Ion Analysis

- Orion Model 901 Microprocessor Ion Analyzers
- Orion Model 407A Specific Ion Meters
- Orion Model 407 Specific Ion Meters
- Orion Model 400 Specific Ion Meters

SELECTED KEY STAFF

WILSON LABORATORIES

0051089

EDUCATION

- University of Cincinnati — B.S. in Chemical Engineering — 1949
- University of Cincinnati — Professional Chemical Engineering — 1958
- U.S. Army Schools, Graduate Diploma:
 - The Ground General School — 1949-50
 - The Artillery School — 1950-51
 - Ordnance Technological Course — 1951-52

REGISTRATIONS

- Professional Engineer In Arizona, Arkansas, California, Colorado, Georgia, Illinois, Kansas, Kentucky, Maryland, Missouri, Nebraska, New Mexico, New York, Oklahoma, Virginia and Texas

PROFESSIONAL AFFILIATIONS

- American Chemical Society
- American Institute of Chemical Engineers
- American Water Works Association
- National Society of Professional Engineers
- Water Pollution Control Federation
- American Academy of Environmental Engineers (Diplomate)
- National Association of Corrosion Engineers
- National Water Supply Improvement Association
- American Society for Testing Materials
- Air Pollution Control Association

PATENTS

- U.S. Patent 3,027,321 — Chromate Reduction Process
- U.S. Patent 3,607,482 — Recovery of Aluminum Chemical Milling Solutions
- U.S. Patent 4,350,597 — Apparatus and Process for Treatment of Sludge

EXPERIENCE

Prior to the establishment of Wilson Laboratories in 1954, Mr. Selm was a regular officer for five years in the U.S. Army Ordnance Corps. After organizing Wilson Laboratories, Mr. Selm acted as Laboratory Director until 1973. Wilson Laboratories was organized to provide accurate analytical results in the areas of: water and wastewater control, general analyses of fuels, oils and lubricants, trace metal analysis, analysis of priority pollutants, industrial solvents, pesticides, industrial gases, general process development and research for water pollution control methodology, development of analytical methods and procedures, analysis of air monitoring, OSHA compliance testing, and industrial hygiene consultation and analysis.

Mr. Selm has authored or co-authored a number of technical articles and publications, and has prepared numerous reports and consulting recommendations on the chemical and chemical engineering field.

ADDITIONAL PROFESSIONAL ACTIVITIES

Mr. Selm has been the Chairman of the State KES Environmental Resources Committee since 1968, and served on the Kansas State Board of Health's Solid Waste Advisory Council, which drafted the Regulations for Implementation of the State's Solid Waste Act.

EDUCATION

- Kansas Wesleyan — B.A. in Chemistry — 1965
- Kansas State University — Process Control School — 1969
- U.S. Bureau of Mines — Noise Measurement Course — 1971
- SM Institute — Dynamics of Motivational Management — 1972
- U.S. Bureau of Reclamation — Ozone Symposium — 1974
- U.S. Environmental Protection Agency — St. Louis, Missouri — Disposal of Sludge on Land — 1976
- Kansas State University — Industrial Waste System Seminar — 1976

REGISTRATIONS

- Professional Engineer in Kansas

EXPERIENCE

Mr. Ascher joined the Company in 1964 as a chemical laboratory technician specializing in water and sewage chemistry. He continued in this capacity until August 1965. After completing his military service, he rejoined the firm in 1966, became an Engineer-In-Training in 1968, and was granted his professional engineering license in 1973.

He has extensive process design experience in biological and chemical treatment plants for industrial and municipal wastewater. He also has extensive process design experience in municipal water treatment plants. Mr. Ascher served as project engineer, responsible for process design, design concepts, design, specifications and cost analysis on a large number of projects.

He is experienced in piping and hydraulic design, cost analysis, construction observation and plant operations troubleshooting. He has also acquired considerable experience in industrial and municipal wastewater surveys, data collection and analysis, coordination of sampling programs, preparation of operating manuals and operator training, plant startup and plant operation.

Mr. Ascher became an Associate with the Company and Laboratory Director in 1984. As Laboratory Director, he exercises technical and administrative control for all programs within the Laboratory. He also assists with the definition of chemical processes in industrial process systems, and in the development of specific design methods for industrial water and wastewater systems.

Mr. Ascher has provided leadership and technical direction for the following major laboratory projects:

- Lockheed-Georgia Company — Marietta, Georgia: Laboratory pilot tests of aluminum chemical milling etchant system
- Grumman Aerospace Corporation — Bethpage, New York: Development of laboratory reactors for aluminum chemical milling etchant recovery system
- CRA, Inc. — Coffeyville and Phillipsburg, Kansas: Sampling and field flow measuring of refinery process wastes and storm water runoff
- Getty Refining and Marketing Company — El Dorado, Kansas: Dirty-water, non-steady state aerator test in a 4.5 million gallon aeration tank
- Central Illinois Public Service Company — Newton and Hutsonville, Illinois: Sampling and effluent flow measurement on large steam generator plants
- General Electric Company — Albuquerque, New Mexico: Air and water pollution sampling and analyses
- LTV Aerospace Corporation — Grand Prairie, Texas: Field laboratory operations for major water pollution control survey
- Iowa Beef Packers — Dakota City, Nebraska: Industrial hygiene analyses for beef slaughtering operation
- City of Roswell, New Mexico: Field pilot test and laboratory analyses for experimental wastewater treatment system
- Tri-County Water Association — Eagle Butte, South Dakota: Set up laboratory, establish laboratory procedures and train chemists for a large rural water supply district
- City of Russell, Kansas: Re-equip water treatment plant laboratory, establish laboratory procedures and train chemists for a small municipal water treatment plant

EDUCATION

- University of Northern Colorado — B.A. in Botany — 1975

PROFESSIONAL AFFILIATIONS

- American Chemical Society

EXPERIENCE

Mr. LeMaster brings to the Laboratory eight years' experience in marketing laboratory services, representing the laboratory to state and federal agencies, client and proposal development for analytical work and contract negotiations.

As a marketing representative, Mr. LeMaster has assisted with negotiations of purchase orders and client contracts, visited current and prospective clients and was involved in project management for major client projects. His background also includes laboratory technician responsibilities which included sample preparation, instrumental and wet chemical analysis of water samples and the completion of data computations and quality assurance/quality control data analyses.

In a supervisory position, Mr. LeMaster was responsible for assisting others with water data interpretation, overall operations of a water and general chemistry group, developing and revising analytical procedures for the water and general chemistry group and reviewing various appropriate state and federal regulatory requirements. He also developed analytical scopes of work and associated cost proposals.

As Director of Business Development for the Laboratory, Mr. LeMaster is responsible for maintaining client relations and developing new business opportunities. He assists clients with project planning and coordination with technical laboratory personnel.

EDUCATION

- University of Pittsburgh — B.S. in Chemistry — 1976
- Kansas State University — Post Graduate Studies in Chemistry
- Perkin-Elmer High Pressure Liquid Chromatography School — 1980
- Finnigan Institute Gas Chromatography/Mass Spectrometry Operation and Priority Pollutant Analysis Courses — 1981

PROFESSIONAL AFFILIATIONS

- American Chemical Society

EXPERIENCE

Mr. Baker joined Wilson Laboratories in 1976. He specializes in gas chromatography and high-pressure liquid chromatography analyses, using all of the currently available detection systems, and in gas chromatography/mass spectrometry (GC/MS) analysis utilizing a Finnigan OWA-30 System.

The Laboratory performs analyses for all categories of priority pollutants, and participated in seven EPA method development studies for organic priority pollutants. Mr. Baker was the chief organic chemist associated with these projects.

He is experienced in organic analysis in a wide variety of media, including groundwater, air, soil, sludges, potable water, wastewater, oils and plant and animal tissue.

Mr. Baker has performed developmental work on a wide variety of gas chromatographic determinations, including low levels of pentachlorophenol in fish tissues, PCB's in casting wax, extraction, clean-up, derivatization and analysis techniques for amines, chlorophenols, chlorinated pesticides and haloalkanes in water. He has developed procedures for the trace analysis of explosive compounds in wastewaters by HPLC procedures in connection with Corps of Engineers contracts.

Mr. Baker has performed organic analysis for the following representative major projects;

- Midwest Hazardous Landfill Groundwater Study: 350 GC/MS complete priority pollutant scans
- Vulcan Materials Company — Wichita, Kansas: Groundwater and process wastewater analyses for halogenated phenols, pesticides and volatiles
- Abbott Laboratories — Wichita, Kansas: Groundwater and process wastewater analyses for cyclic amine compounds, utilizing capillary GC with nitrogen detection
- Corps of Engineers — Independence, Missouri: Wastewater analysis and treatability studies for explosive compounds by HPLC
- Midwest Pesticide Formulator: Method development and GC/LC analysis for chlorinated pesticides and herbicides.

EDUCATION

- University of Colorado, Boulder — B.A. in Chemistry — 1971
- University of Northern Colorado — M.S. in Science Education — 1974
- Perkin Elmer Atomic Absorption School — 1975
- Perkin Elmer Atomic Absorption and Data Management School — 1981

PROFESSIONAL AFFILIATIONS

- American Chemical Society

EXPERIENCE

Mr. Fast joined Wilson Laboratories as an Analytical Chemist in 1975. He is in charge of the Spectroscopy Laboratory and is responsible for all metals analysis by atomic absorption.

Mr. Fast has extensive experience in the operation of a variety of atomic absorption instrumentation, including computer-operated AA. This includes determination of metals in industrial hygiene samples, potable water, groundwater, lubricating oil, rock, air, soil, industrial waste and biological samples.

In addition to his broad atomic absorption background, he also has experience in infrared analysis and gas chromatographic experience. He has performed numerous industrial hygiene surveys for airborne contaminants at industrial facilities.

Mr. Fast has been involved in the following representative major projects at Wilson Laboratories:

- National Cash Register Corporation — Wichita, Kansas: Analysis of waste materials for metals
- Derby Refining Company — Wichita, Kansas: Groundwater analysis for metals
- Chevron Resources Company — Creede, Colorado: Groundwater analysis for metals
- General Battery Corporation — Salina, Kansas: Blood Lead Analysis; Industrial Hygiene
- Westinghouse Electric Corporation — Salina, Kansas: Mercury in urine analysis; Industrial Hygiene
- Kansas Power & Light Company — State of Kansas: Mercury in urine analysis; Industrial Hygiene
- Memorial Hospital — Topeka, Kansas: Asbestos in air sampling
- Sherwin-Williams Chemicals Corporation — Coffeyville, Kansas: Airborne heavy metals sampling and analysis
- University of North Dakota: 15-month air quality analysis
- Bendix Corporation — Grand Junction, Colorado: Soil and rock analysis
- Vulcan Materials Company — Wichita, Kansas: Waste treatment pilot studies for concentrated organic wastes by extraction procedures
- Vulcan Materials Company — Wichita, Kansas: Pilot study involving high-pressure hydrodechlorination of concentrated chlorinated hydrocarbons and chlorinated phenols
- Vulcan Materials Company — Wichita, Kansas: Waste treatment pilot studies for decomposition of dilute chlorinated organic wastes by Ozone/UV treatment
- Vulcan Materials Company — Geismar, Louisiana: Pilot studies for biological activated sludge degradation of sodium formate containing brine waste
- Schuylkill Metals Corporation — Forest City, Missouri: Groundwater analysis for metals
- Amoco Refining Company — Sugar Creek, Missouri: Groundwater analysis for metals
- Waste Management, Inc. — Kansas: Analysis of 350 samples of groundwater and lagoon water for eight heavy metals at NIES Hazardous Waste Sites
- Environmental Protection Agency — Various Sites: Analysis of varying matrices for 20 metals.

EDUCATION

- Bemidji State University — B.S. in Environmental Studies — 1981
- Colorado State University — American Industrial Hygiene Association "Quantitative Industrial Hygiene" Course — 1983
- Chicago, Illinois — National Safety Council "Industrial Hygiene and Safety Management" Course — 1983
- Chicago, Illinois — McCrone Research Institute "Microscopical Identification of Asbestos" Course — 1984
- Kansas City, Missouri — UMC/EPA "Safe Removal of Asbestos from Buildings" Seminar — 1984
- Topeka, Kansas — AGC "Asbestos Control" Seminar — 1984

PROFESSIONAL AFFILIATIONS

- American Industrial Hygiene Association
- National Safety Council

EXPERIENCE

Ms. Moles joined Wilson Laboratories in 1981 as a technician in the general laboratory. After four months at the laboratory, she was moved to the spectroscopy laboratory as an inorganic chemist. In 1983, she began coordinating the industrial hygiene program, in addition to her spectroscopy duties.

Ms. Moles is the project manager for all industrial hygiene projects for the laboratory and she supervises the industrial hygiene field sampling and analytical program.

Representative projects include:

- General Electric Corporation — Albuquerque, New Mexico: Industrial hygiene analyses for various metals
- Kansas Insulation — Kansas and Mississippi: Asbestos fiber air monitoring and analyses
- Great Plains Asbestos Control — Kearney, Nebraska: Asbestos fiber air monitoring and analyses
- Woodward-Clyde Consultants — Wichita, Kansas: Hazardous waste site air monitoring
- General Battery Corporation — Salina, Kansas: Airborne lead and arsenic analyses
- General Electric Corporation — Worthington, Ohio: Industrial hygiene analyses for various metals
- CertainTeed — Kansas, Texas and Maryland: Corporate contract for vinyl chloride analyses
- Hercules, Inc. — DeSoto, Kansas: Industrial Hygiene Analysis
- Farmland Industries — St. Joseph, Missouri: Airborne Organic Analyses
- Max Bishop Architects — Kansas: Bulk Sample Asbestos Identification
- Foos Insulation — Kansas: Bulk Sample Asbestos Identification

EDUCATION

- Kansas State University — B.S. in Chemical Engineering
– 1977
- Kansas State University — M.S. in Chemical Engineering
– 1980

PROFESSIONAL AFFILIATIONS

- Professional Engineer in Kansas

EXPERIENCE

Mr. Garrett graduated Magna Cum Laude from Kansas State University in 1977. During college he served as a research assistant for the USDA Grain Marketing Research Laboratory in Manhattan, Kansas. During this time he conducted a research program in the field of grain dust explosions. The work completed was bench-scale and the effects of dust particle size and composition on explosibility parameters were studied. He received his Master's Degree in 1980, completing his thesis on *"Effect of Dust Particle Size and Composition on the Explosibility of Grain Dust"*.

After graduation, Mr. Garrett joined the Exxon Research and Development Laboratories in Baton Rouge, Louisiana, where he developed and supervised research programs in fluid coking and flexi-coking. These programs were developed to determine yields and the qualities of liquids from fluid coking of shale oil, and to investigate innovative methods of improving liquid yields from fluid coke by improving fluidization of bed.

Mr. Garrett co-authored the paper *"Improved Diagnostics for Determination of Minimum Explosive Concentration, Ignition Energy and Ignition Temperature of Dusts,"* which was published in *Powder Technology* in 1982.

Mr. Garrett is experienced in the areas of statistics, data analysis, computer programming, program development, research, teaching and pilot plant operation and hardware. As a member of the Industrial Division, he is involved in chemical process design and research, industrial waste treatment process design and engineering supervision of process pilot studies. He performs research in the area of hydrogen peroxide in combination with iron and ultraviolet light catalysts for the treatment of refractory organics and for the destruction of explosives in wastewater. Mr. Garrett is also involved in research and development activities for treatment processes.

Representative projects in which Mr. Garrett has been involved include the following:

- Woodward-Clyde Consultants — Kansas City, Kansas: Process studies regarding chemical treatment of lagoon water from a galvanizing plant
- Lake City Army Ammunition Plant — Independence Missouri: Process studies regarding treatment of ammunitions waste with hydrogen peroxide, ultraviolet light and iron
- Certain-Teed Corporation — McPherson, Kansas: Process studies regarding recovery of methyl ethyl ketone and tetrahydrofuran from solvent mixtures
- Beech Aircraft Corporation — Boulder, Colorado: Process studies regarding destruction of missile propulsion fuel, a mixture of unsymmetrical dimethylhydrazine and diethylenetriamine with ultraviolet light/hydrogen peroxide/iron
- Hesston Corporation — Hesston, Kansas: Process studies regarding COD reduction of waste streams using hydrogen peroxide
- HTB, Inc. — Oklahoma City, Oklahoma: Detailed studies and process development for water treatment of runoff waters containing high levels of precursors for trihalomethanes
- City of Kansas City, Kansas: KAW Point Monitoring, sampling program which continuously monitored influent wastewater to municipal Wastewater Treatment Plant No. 1 to detect the occurrence of high-strength industrial discharges
- Evans Grain Company — Salina, Kansas: Bench-scale experimental screening studies to develop a process which produces a suspension fertilizer in which insoluble fertilizer particles remain in suspension for extended periods of time

EDUCATION

- Goshen College — B.A. in Biology — 1968
- University of Iowa — M.S. in Chemistry — 1979

PROFESSIONAL AFFILIATIONS

- American Chemical Society
- American Industrial Hygiene Association

EXPERIENCE

Mr. Newcomer joined Wilson Laboratories in 1981 with 13 years of high school and college teaching experience in chemistry and biology. In this position, he was responsible for both classroom and laboratory management, and was instrumental in the curriculum department. He was presented the Outstanding Young Educator Award in 1974, and was also awarded a National Science Foundation grant in 1978.

As Chief Chemist, Mr. Newcomer provides technical expertise in all areas of analytical chemistry including method development, proper laboratory techniques, data review and quality control procedures. His management responsibilities for the general analytical laboratory include the supervision and training of laboratory technicians and coordination of work assignments.

Mr. Newcomer acts as Project Manager for numerous laboratory projects. He has held this responsibility for the following major projects:

- Waste Management Incorporated — Furley, Kansas: Groundwater Monitoring, field sampling and analysis
- Woodward-Clyde Consultants — Furley, Kansas: Air monitoring and analysis at a hazardous waste landfill facility
- Bendix Corporation — Kansas City, Missouri: General Analytical Services, wastewater analysis
- USDA — Washington D.C.: Adulteration of foods
- Mobile Traveler Motor Homes — Junction City, Kansas: Hazardous Waste Characterization
- Hill Air Force Base — Ogden, Utah: Hazardous Waste Characterization
- Abbott Laboratories — Wichita, Kansas: Groundwater Monitoring, NPDES analysis
- AMOCO — Sugar Creek, Missouri: Groundwater Monitoring and Hazardous Waste Analysis

EDUCATION

- University of Arkansas — B.S. in Chemical Engineering — 1951
- U.S. Environmental Protection Agency — Source Sampling — 1972
- University of Kansas — Sanitary Engineering Conference — 1972
- SM Institute — Dynamics of Motivational Management — 1974
- U.S. Environmental Protection Agency — St. Louis, MO — Disposal of Sludge on Land — 1976

REGISTRATIONS

- Professional Engineer in Kansas

PROFESSIONAL AFFILIATIONS

- National Association of Corrosion Engineers

EXPERIENCE

After graduation from the University of Arkansas in 1951, Mr. Spicer joined the Carbide and Carbon Chemicals Company of Paducah, Kentucky as a Process Engineer. While there, he coordinated with contractor and construction personnel on completion and testing of systems of an AEC gaseous diffusion plant. He also supervised an operation area in the plant and taught in the process operator school.

In 1953, Mr. Spicer was employed as a Process Engineer by the Columbian Carbon Company. Among his duties was the responsibility for carbon black furnaces, and collecting, processing and handling equipment. He also designed and supervised the fabrication of specialized equipment used in loading operations.

In 1958, Mr. Spicer was employed by the Boeing Company as an Associate Engineer. He conducted studies and tests of corrosion of aluminum and other materials, including stress corrosion, and performed tests involving chemical

cleaning, chemical milling, anodizing and coatings, both organic and inorganic. Mr. Spicer designed and fabricated most of the test fixtures and equipment used in the work and also wrote and coordinated process specifications. In 1962, Mr. Spicer became a Senior Facilities Engineer and was responsible for defining and specifying equipment for chemical cleaning, chemical milling and finishing, metal bonding, electroplating, painting and plastics processes. These responsibilities included determining equipment need and size, writing specifications for equipment and coordination with equipment suppliers, purchasing personnel and equipment installers. Mr. Spicer also represented the Facilities Department on the Wichita Division Pollution Control Committee.

In 1970, Mr. Spicer joined the Company as a Chemical Engineer. He has been responsible for the design and specifications of numerous process engineering assignments including:

- LTV Aerospace Corporation — Dallas, Texas: Industrial Waste Treatment Plant Additions including deionized water system
- The Boeing Company — Wichita, Kansas: Plating Shop Rehabilitation
- General Dynamics — Ft. Worth, Texas: Air Emission Survey and Report; and Water Emission Survey and Report
- The Boeing Company — Wichita, Kansas: Titanium Process Line
- Sherwin-Williams Chemical Company — Coffeyville, Kansas: Zinc Sulfate Spray Dryer Scrubber and Zinc Oxide Calciner Scrubber
- Certain-Teed Products Corporation — McPherson, Kansas: Dust Collection System
- Grumman Aerospace Corporation — Bethpage, New York: Industrial Waste Treatment Plant
- Vulcan Materials Company — Geismar, Louisiana: Disposal System for sodium formate; and Process Development for acid/alkaline neutralization
- Vulcan Materials Company — Wichita, Kansas: Wastewater Collection System for wastewater disposal
- CRA Refinery — Phillipsburg, Kansas: Wastewater Treatment Plant

EDUCATION

- Marymount College — B.S. in Chemistry — 1984
- Norwalk, Connecticut — Perkin-Elmer Corporation
LIMS/2000 Key Personnel Training — 1984

EXPERIENCE

Ms. Siemens joined Wilson Laboratories in 1975 as a Laboratory Technician. She is experienced in every facet of the laboratory operation, and has performed a wide variety of general chemical analyses. Ms. Siemens supervises the administrative section, coordinates purchasing and billing activities and is responsible for computer operations.

In 1979, she assumed administrative duties for the Laboratory while continuing to perform as a Chemical Technician. Since 1981 she has been responsible for sample tracking and work schedules in the laboratory, from sample receipt to final report. She was actively involved in the development of the computerized information management system. Ms. Siemens developed the database structure for the Perkin-Elmer LIMS mainframe computer system installed in June 1983.

She has held project responsibility for various analytical programs including the following major projects:

- EPA Inorganics Superfund Contract — Hazardous Waste
- Hercules Aerospace Division — Analysis of Industrial Wastewater
- Schuylkill Metals — Groundwater Analysis
- Resource Engineering — Priority Pollutant Analyses
- EPA Special Analytical Services
- Engineering Enterprises — Monitor Well and Groundwater Analysis

LABORATORY SERVICES

WILSON LABORATORIES

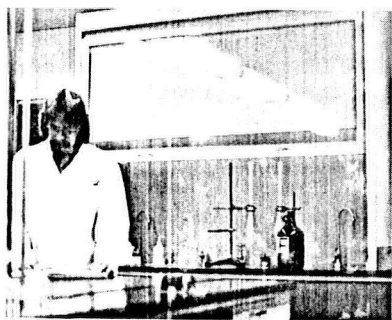
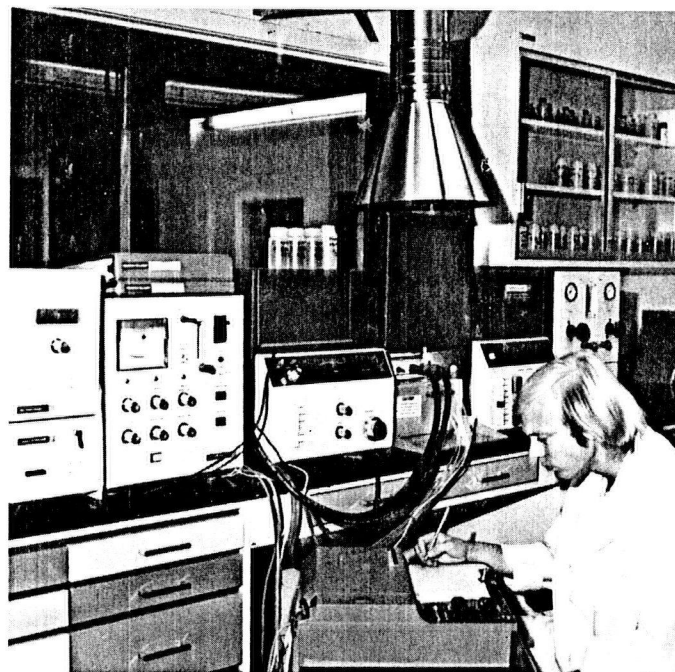
0061100



The Analytical Laboratories offer a full range of capabilities utilizing modern instrumentation. Major categories of analytical chemistry services offered include Spectroscopy, Chromatography and General Chemistry. Computerized data-handling facilitates sample tracking and reporting.

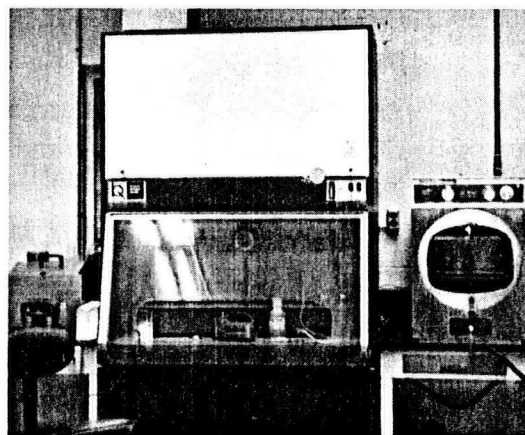
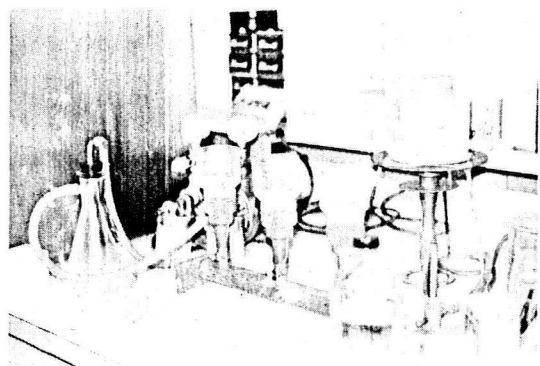
Substances analyzed include water and wastewater, process chemicals, soils, sludges and biological materials. Industrial hygiene analyses are also performed.

Forensic analyses and expert witness services are provided by the laboratory. Wilson Laboratories has a long experience record in the technical investigation of product failures, accidents, fires, explosions, structural failures and toxicologic investigations.



MAJOR INSTRUMENTATION

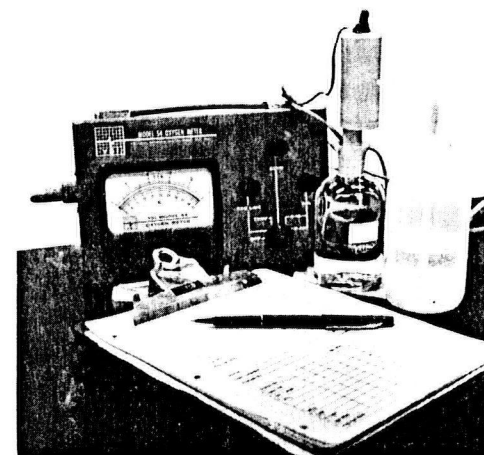
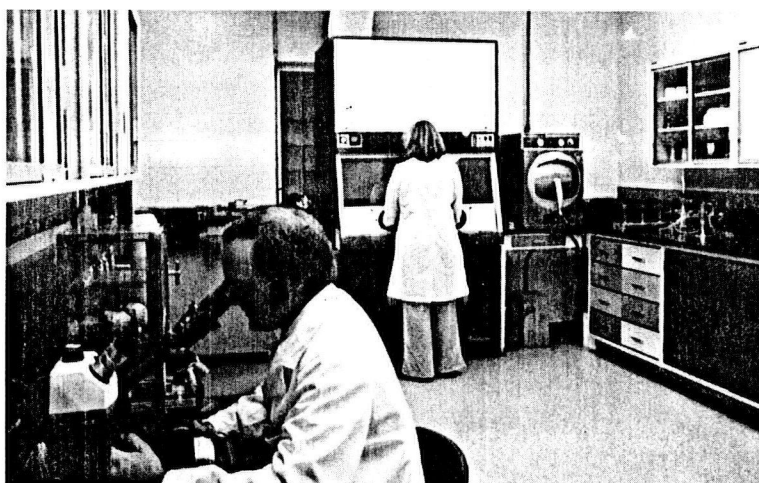
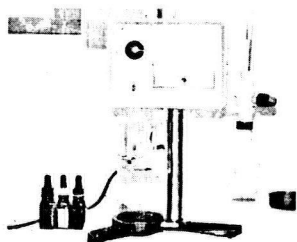
- GC/MS
- HPLC
- Gas Chromatography
- Atomic Absorption
- Infrared, UV-Vis
- Total Organic Carbon

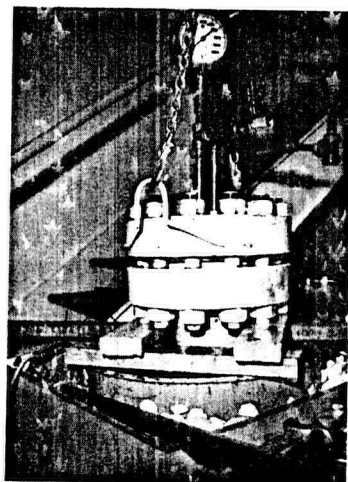


The Biological Laboratory's staff of biologists and microbiologists performs a wide variety of bacteriological investigations and assessments.

A Bioquest laminar-flow hood is used in the investigation of toxic and hazardous biological substances and to isolate bacterial species.

Biological assessment services include biological oxygen demand, oxygen profiles and uptakes, organism identification, benthic surveys, diversity indices determination, static bioassays and determination of total coliform, fecal coliform and fecal streptococcus.

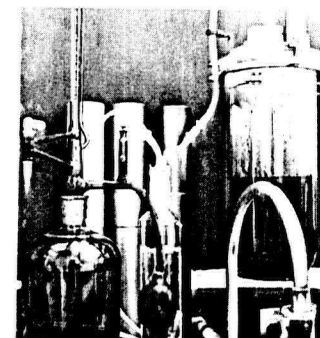
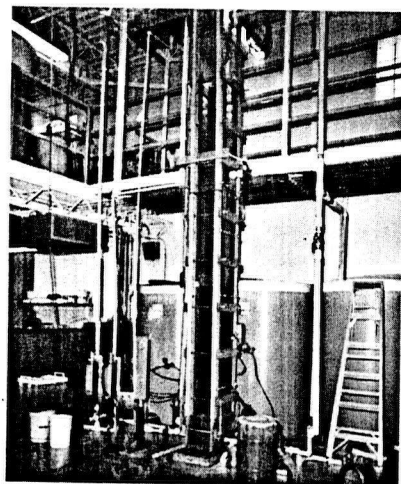


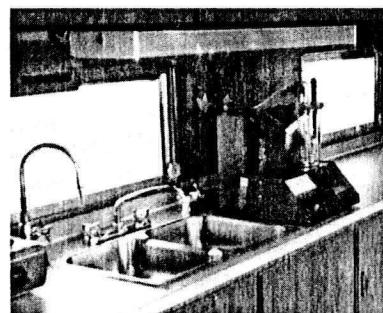
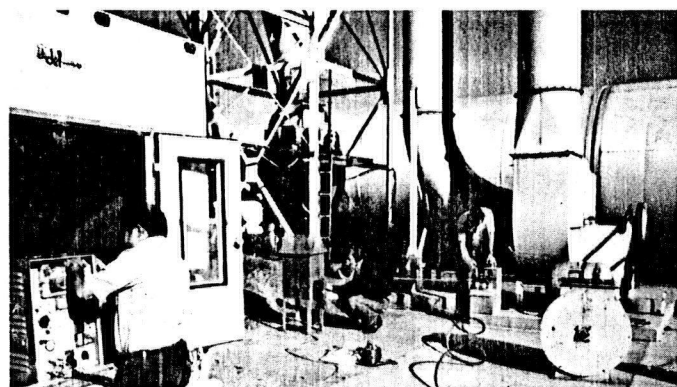
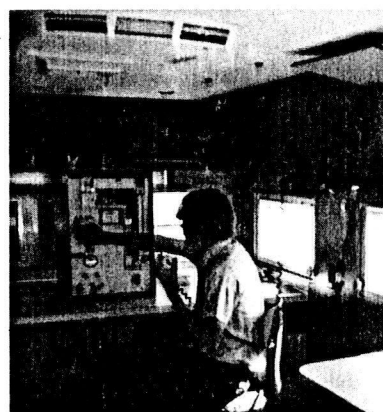
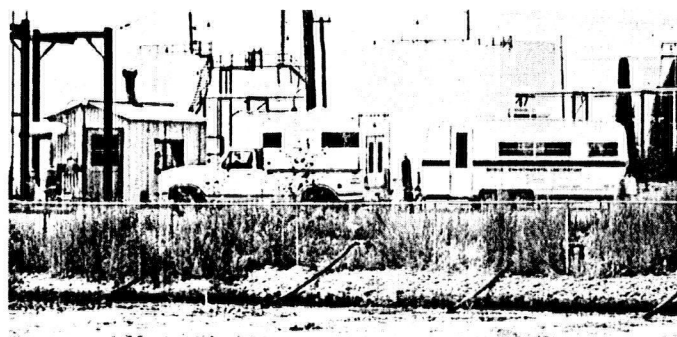
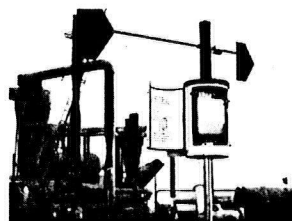
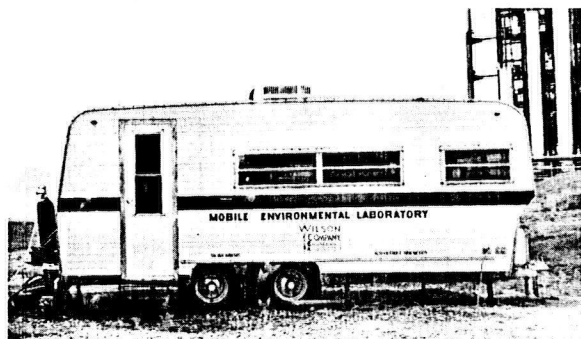


The Research and Development Laboratory provides the facilities for a wide range of pilot and process development studies. New processes are studied and tested in scale-sized equipment and operating limits are determined with a higher degree of certainty than is possible in laboratory studies. A staff of chemists and chemical engineers combine the principles of chemistry and physics with practical knowledge to produce studies and process designs which can be translated into construction plans and successful plant operations.

The laboratory capabilities include the following process operations:

- Extraction
- Absorption
- Stripping
- Biological Reduction
- Distillation
- Pyrolysis
- Ozone-UV oxidations
- Chemical Precipitations
- Adsorption
- Ion Exchange





The Field Surveys section of the Laboratory performs on-site surveys for water, air, noise and thermal pollution. A completely equipped mobile laboratory with two-way radio equipment is utilized for field projects.

Wastewater sampling techniques include the use of composite samples and multiple, random grab sampling based on statistical analysis procedures to obtain optimum data for design. Data reduction and regression analyses are performed by computer.

Flow measuring equipment includes modified Palmer-Bowlus flumes, orifices and the several forms of weirs with appropriate totalizers and recorders as required by stream conditions. Special flow measurements involve ultra-sonic, electromagnetic and capacitance probe flow transmitters.

Industrial hygiene ambient air sampling and analysis for such parameters as sulfuric acid mist, suspended solids, sulfation rates, dustfall, NO_x , SO_2 , hydrocarbons and radioactivity are also performed.

CERTIFICATES

WILSON LABORATORIES

0061105



STATE OF KANSAS

DEPARTMENT OF HEALTH AND ENVIRONMENT

Certificate

This is to certify that WILSON LABORATORIES
SALINA, KANSAS has been
approved in accordance with K.S.A. 65-171k for performing the
following analyses on drinking water and/or pollution control samples.

Microbiology (Total and Fecal Coliform by Membrane Filtration), Acid Extract (GC/MS), Acrolein and Acrylonitrile (G.C.) Alkalinity, Aluminum (Al), Ammonia, Antimony (Sb), Arsenic (As), Barium (Ba), Base/Neutral Extract (GC/MS), Beryllium (Be), Biochemical Oxygen Demand, Boron (B), Bromide, Cadmium (Cd), Calcium (Ca), Chemical Oxygen Demand, Chloride, Chlorinated Hydrocarbons (G.C.), Chlorinated Hydrocarbon Pesticides, Chlorine, Chlorophenoxy Acid Herbicides, Chromium (Cr, Total & Hexavalent), Cobalt (Co), Specific Conductivity, Copper (Cu), Cyanide, Dissolved Oxygen, Fluoride, Haloethers (G.C.), Hardness, Iron (Fe), Kjeldahl Nitrogen, Lead (Pb), Magnesium (Mg), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Nitrate/Nitrite, Nitroaromatics & Isophorone (G.C.) Nitrosamines (G.C.), Oil & Grease, Orthophosphate, pH, Phenols (4AAP & G.C.), Total Phosphorus, Phthalate Esters (G.C.), PolyChlorinated Biphenyls, PolyNuclear Aromatics (H.P.L.C.), Potassium (K), Purgeable Aromatics (G.C.), Purgeable Halocarbons (G.C.) Purgeables (GC/MS), Selenium (Se), Silicon (Si), Silver (Ag), Sodium (Na), Total Solids, Total Dissolved Solids, Total Suspended Solids, Sulfate, Sulfide, Sulfite, Surfactants (M.B.A.S.), Temperature, Thallium (Tl), Tin (Sn), Titanium (Ti), Total Organic Carbon, Trihalomethanes, Turbidity, Vanadium (V), and Zinc (Zn)

Certificate No. E-191 Date Issued 7-1-84 Expiration Date 7-31-85

Barbara J. Schel
Secretary Department of Health and Environment

R. A. E. 7-1-84
Environmental Laboratory Certification Officer

0061106



STATE OF KANSAS

DEPARTMENT OF HEALTH AND ENVIRONMENT

Certificate

This is to certify that WILSON LABORATORIES
PALENA, KANSAS has been
approved in accordance with KSA 1979 Supp 65-3406* for performing the
following analyses on solid or hazardous waste samples.

*updated to KSA 1981 Supp 65-3431

Arsenic (As), Barium (Ba), Cadmium (Cd), Chlorinated Hydrocarbon Pesticides,


Chloro Phenoxy Acid Herbicides, Chromium (Cr, Total & Hexavalent), Corrosivity,

E.P. Toxicity Extraction, Ignitability, Lead (Pb), Mercury (Hg), pH,

Selenium (Se), and Silver (Ag)

Certificate No. 2-1183 Date Issued 2-1-84 Expiration Date 2-28-85


Secretary, Department of Health and Environment


Environmental Laboratory Certification Officer

0061107

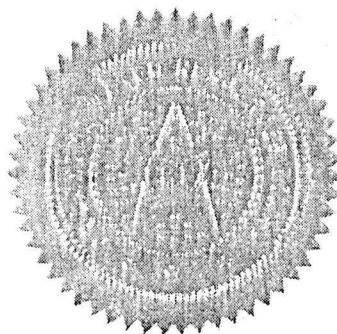
**OKLAHOMA
WATER
RESOURCES
BOARD**

Hereby Recognizes That


Wilson Laboratories

Laboratory No. 7204

is a participant in the Oklahoma Water Resources Board's LABORATORY CERTIFICATION PROGRAM and maintains on file a List of Parameters for which it is certified to perform analyses.



Done this 9th day of June, 19 81


James R. Barnett Executive Director

This certificate is valid only for
JANUARY 1 Through JUNE 30
1985

0061103

OKLAHOMA WATER RESOURCES BOARD
WATER QUALITY DIVISION (405) 271-2541
1000 N.E. TENTH STREET, P.O. BOX 53585
OKLAHOMA CITY, OKLAHOMA 73152

Page 1 of 2

LABORATORY CERTIFICATION PROGRAM
LIST OF PARAMETERS CERTIFIED FOR 1985

CATEGORY I (MINERALS), CATEGORY II (NUTRIENTS),
AND CATEGORY III (METALS & TOXIC SUBSTANCES)

Each laboratory shall provide a copy of this list
(including Category IV) to any of their clients that are
permitted by the Oklahoma Water Resources Board and/or EPA.

DECEMBER 11, 1984

* Each parameter certified for the FULL YEAR of 1985 (from 1-1-85 to 12-31-85) is the parameter which was successfully analyzed in both the Spring and Fall Tests in 1984.

** Each parameter certified for the FIRST SIX MONTHS of 1985 (from 1-1-85 to 6-30-85) is the parameter which was successfully analyzed only once in 1984 either in the Spring Test or the Fall Test. Any parameter under such certification would be extended to the second half of 1985 (from 7-1-85 to 12-31-85) if that particular parameter is successfully analyzed in the Spring Test of 1985.

Parameters NOT successfully analyzed in either the Spring Test or the Fall Test in 1984 are not shown on this list. But certification for such parameters would be given from 7-1-85 to 12-31-85 if they are successfully analyzed in the Spring Test of 1985.

The updated certification list for the second half of 1985 will be ready for distribution after July 1, 1985.

A WILSON LABORATORIES

ID # 7204

ATTN: LYNN R. NEUCOMER
P.O. BOX 1858
SALINA KS 67401

TEL. (913) 825-7186
EXT. 506

* The following parameters are certified from 1-1-85 to 12-31-85

Hardness	Chloride	Sulfate
Ammonia-Nitrogen	Nitrate-Nitrogen	Tot. Phosphorus
pH	Aluminum	Arsenic
Barium	Cadmium	Calcium
Chromium	Copper	Iron
Lead	Magnesium	Manganese
Mercury	Nickel	Potassium
Selenium	Sodium	Zinc

** The following parameters are certified from 1-1-85 to 6-30-85.

Dis. solids Spec. conductance

A This commercial lab may provide analytical services to the permittees of OWRB/EPA

OKLAHOMA WATER RESOURCES BOARD (OWRB)
WATER QUALITY DIVISION (405) 271-2541
1000 NE 10th STREET, P.O. BOX 53585
OKLAHOMA CITY, OKLAHOMA 73152

Page 2 of 2

LABORATORY CERTIFICATION PROGRAM
LIST OF PARAMETERS CERTIFIED FOR 1985

CATEGORY IV (MISCELLANEOUS)

Each laboratory shall provide a copy of this list to any of
their clients that are permitted by the Oklahoma Water
Resources Board and/or EPA.

December 11, 1984

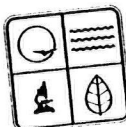
All of the following parameters are certified from January 1, 1985 to June 30, 1985. The updated certification list for the second half of 1985 will be ready for distribution by July 1, 1985.

A WILSON LABORATORIES

BOD 5-Day, Boron (B), Bromide, Chlorine (Combined Available, Free Available, and Total Residual), Cobalt (Co), Cyanide, DO, Fecal Coliform, Fluoride, GC, GC/MS, Hexavalent Chromium, Iodide, Nitrite, Oil and Grease, Orthophosphate, Phenols, Settleable Solids, Silver (Ag), Sulfide, Sulfite, Surfactants (MBAS), TUC, Total Coliform, Total Organic Halides (TOX), Total Solids, Total Suspended Solids, Turbidity

A This commercial/contract laboratory may provide analytical services to the permittees of OWRB or EPA.

0061109



Lab-Reciprocal
Wilson Laboratories
Salina, Kansas

February 14, 1983

Ms. Janis Butler, P.E.
Laboratory Director
Wilson Laboratories
P. O. Box 1858
Salina, Kansas 67401

Dear Ms. Butler:

We have received the latest on-site evaluation and related documents for Wilson Laboratories. Upon reviewing the certifying documents from the State of Kansas, we find everything to be in order. Therefore, the Wilson Laboratories, Salina, Kansas is granted reciprocal certification (interim) for the analysis of drinking water as specified below:

Microbiology (Total and Fecal Coliform,
Fecal Streptococci)

Inorganic Chemistry (Arsenic, Barium, Cadmium, Chromium,
Lead, Mercury, Nitrate, Selenium,
Silver and Fluoride)

Organic Chemistry (Endrin, Lindane, Methoxychlor,
Toxaphene, 2,4-D, 2,4,5-TP Silvex,
and Trihalomethanes)

When the State of Kansas certification expires on June 30, 1983, you will need to document your recertification for us. Meanwhile, if you have any questions or comments, please feel free to contact this office.

Sincerely,

William C. Ford

William C. Ford, P.E.
Director
Public Drinking Water Program

WCF:BHM:bc

Christopher S. Bond Governor
Fred A. Latsch Director

Division of Environmental Quality
Robert J. Schrelber Jr., P.E. Director

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Jefferson City, Missouri 65102 (314) 751-3241
1103 Southwest Blvd.
P.O. Box 1308

0111900

0061111

ATTACHMENT 2

Telecoms



TELEPHONE CONVERSATION RECORD

0061112

Date 15 APR 85 Time 1050 ^{a.m.}_{p.m.} Phone No. 913/825-7184 Project No. _____To (A) Bernadine SiemensFrom (B) John Lucero / DonSubject Question from Livestock LAP & Wilson Brochure

1. P.A.T. on air filters.
2. Using dried blood standards - NBS
Previously used CDC stds.
3. Computer information management can probably
communicate w/ our DBMS (IBM PC)
4. Previous blood samples analyzed are as follows

Textile Services 2-3 samples per quarter
for lead
General Battery ~10 samples for As & Pb

From 1978 or 79.



TELEPHONE CONVERSATION RECORD

0061113

Date 15 APR 85 Time 1135 ^{a.m.} p.m. Phone No. 216/762-7294 Project No. W68230.L1.48

To (A) AIHA - Mary Stahl

From (B) John Luvato/DEN

Subject AIHA Certified Lab #141 - Wilson Labs.

Certification process & parameters

Approved for our samples + PAT program
metals silica asbestos & organic samples

12-18 mos to be accredited

QC manual & control charts

Committee review

site visitor

to Accreditation Committee for vote

Board of Directors vote

2 clean rounds of PAT

Not accrediting blood analysis -- accredit the lab
as a whole



TELEPHONE CONVERSATION RECORD

Date 15 APR 85 Time 200 ^{a.m.}
p.m. Phone No. 406/493486 Project No. W68230.L1.48

/ To (A) Gene Taylor / RSPD ARCO

/ From (B) Doug Lovell / John Lucero / Dent

Subject Livestock Laboratory

Lucero/Lovell explained Wilson's lack of experience & qualifications (metals prep individual).

Less than 30 blood samples over the last two years. Have not analyzed blood performance samples.

Taylor agreed the SMO should proceed with procurement of a lab outside of the CUP.

Lucero/Lovell to inform Dr. Hillman of the situation and ask her opinion. Taylor does not need Wilson Labs 50Q. Also inform Paula Ausberger (SMO) & have her proceed with laboratory procurement.

BY

Lucero



TELEPHONE CONVERSATION RECORD

0061115

Date 15 APR 85 Time 210 ^{a.m.}
~~p.m.~~ Phone No. 236 5065 Project No. W68230.L1.48To (A) Dr. Juanita HillmanFrom (B) John Lucero / DenSubject Livestock laboratory

B) - Wilson has analyzed less than 30 blood samples over the last 2 years + other limitations. We spoke to Taylor and we have to go outside the CUP.

A) Ok - Check state labs.